International Space Station Management
and Cost Evaluation Task Force
Washington, D.C. 20004

December 6, 2002

Dear Sean ~~Mr. O'Keefe~~,

The International Space Station (ISS) Management and Cost Evaluation Task Force has completed its review of NASA's response to our report dated November 1, 2001. Our Assessment Report dated December 6, 2002, is enclosed. We will report our results to the NASA Advisory Council on December 11, 2002.

We were extraordinarily pleased with the responsiveness of NASA and very impressed with the NASA management associated with the International Space Station.

We greatly appreciate the enormous effort in preparing for our November 13-14, 2002 review. The quality of the presentations was exceptional. We wish you enormous success with the continuation of the ISS Program.

Sincerely,

A. Thomas Young
Chairman
ISS Management and Cost Evaluation Task Force

cc:
Dr. Charles F. Kennel
Dr. J. Donald Miller
Mr. Patrick S. Pilola

IMCE Assessment Report
December 6, 2002

The International Space Station (ISS) Management and Cost Evaluation (IMCE) Task Force reconvened at Headquarters on November 13-14, 2002 to review NASA's response to the fndings and recommendation contained in the IMCE report dated November 1, 2001. NASA management and ISS Program personnel presented detailed implementation status on twelve specific recommendations made in that report. The NASA Administrator, Mr. Sean O'Keefe, also provided valuable insight into the role the ISS plays in a newly articulated NASA vision and strategic direction.

Closely related and integral to the ISS is the NASA Integrated Space Transportation Plan, described in the FY 2003 Budget Amendment justification. This plan was discussed in detail by the Administrator, and is viewed by the Task Force as a much needed and realistic initiative that clearly sets the right course for the future.

The IMCE Task Force expressed unanimous appreciation for the professional and comprehensive presentations and discussions during the 2-day review. At all levels within NASA, the positive response to IMCE findings and recommendations was recognized and significant progress was noted in nearly all aspects of the ISS program. The Task Force is confident that the new ISS management team is now proceeding along a path for successful completion of the International Core Complete program. Further, the Task Force feels that a firm foundation of program planning and demonstrated performance will be in place to support future enhancements that fully exploit the science potential of the ISS.

Specific comments on the NASA response to several of the IMCE findings and recommendations follow.

Management Structure and Responsibility Clarification

Several IMCE recommendations were associated with the program management structure and lines of responsibility. The management restructure NASA chose is somewhat different from that proposed by the IMCE; but the intent and results to date are very consistent with our expectations. The experience level and obvious motivation of the new management team, coupled with clear lines of accountability, provide a firm basis for effective program execution.

The consolidation of the Shuttle and ISS programs under a single Deputy Associate Administrator is applauded and should lead to greater efficiencies in the future.

Closer integration of the Office of Biological and Physical Research and the ISS program is obvious at the NASA Headquarters level, and the assignment of a Program Scientist to the Program Office is a positive step. The Task Force encourages more direct involvement of outside scientists through participation on science teams and a science steering group reporting to the Program Scientist.

Significant progress has been achieved in moving towards a program management concept as opposed to an institutional management concept for ISS. The Task Force encourages continued emphasis on the program management approach.

Program Planning and Performance Monitoring

Completion of the Cost Analysis Requirements Description (CARD) was a major accomplishment and provided the basis for several independent cost estimates. Identified funding shortfalls in the near years were generally consistent across the different approaches, as were the life cycle cost estimates. Recognition of potential near term problems, and an adjusted funding profile in the FY 2003 Budget Amendment, clearly indicates a new, proactive approach to developing an executable program.

The Task Force believes the funding levels reflected in the FY 2003 Budget Amendment are credible for the Core Complete program. However, if that amendment is not approved, the current program does not lead to viable Core Complete or science programs.

Reasonable progress has been made in developing an integrated Program Plan. The Management Information System is still in a developmental phase, but examples provided to the Task Force show great potential. There are initiatives to strengthen project level financial and program control capabilities; these will be key to maintaining the momentum noted to date. The Task Force recommends that Earned Value analysis summaries be provided monthly to the Program manager and Code M executives as these tools are improved and completed.

Research Prioritization, Planning, and Execution

The Research Maximization and Prioritization (ReMaP) process is laudable and the resulting prioritization of the research program is consistent with the NASA strategic plan and critical to effective use of the ISS. The "Strategic Research" described in Priority 1 is important for the sustainability of humans in space. The Task Force is unanimous in that the highest research priority should be solving problems associated with long-duration human space flight, including the engineering required for human support mechanisms. However, it is the "Fundamental Research" in Priority 2 which is likely to lead to surprising and important scientific results and should be appropriately supported.

Capability/readiness to perform varying levels of all high priority research at each of the evolving ISS configurations is encouraging. At the "Core Complete" stage of development of the ISS, credible, but modest, progress can be made in addressing this priority. Indications are that upcoming budget submissions will target increased capability in specific areas, although no details were provided to the Task Force.

Significant progress in fundamental biology can be made only after a centrifuge is added to the ISS. The Task Force notes the positive revision in Centrifuge Accommodation Module (CAM) availability date to 2007. However, it is our position that the criticality of this capability dictates a viable back-up plan; none has been developed or apparently considered.

The matter with the next greatest urgency for a credible program in fundamental science is that of the time which the astronauts can devote to working on science. With a 3-person crew the pace of research will be far too slow. Some very important labor-intensive experiments will not even be possible. Resolution of the end state crew size, driven by science needs, should be a high priority effort by the program.

Program Roadmap

The program plan leading to International Core Complete is reasonable and achievable with some schedule stretch out. The Task Force feels the schedule for the near term major milestone for Node 2 (February '04) is at some significant risk. A delay measured in months is likely, however any budget impact should be within planned funding levels.

A program roadmap leading to an end-state beyond Core Complete is still in the early stages of development, and is apparently contingent on further decomposition and analysis of science priorities. Several specific efforts are underway, but they are not yet reflected in a comprehensive plan. Token funding for two long-lead ISS items has been requested for only 2004. The Task Force was not provided insight into detailed plans or funding for enhanced research.

Neither gate decisions reflecting demonstrated ability to execute the long-term, post Core Complete program, nor metrics for evaluating program performance thereof, were presented to the Task Force.

A major impediment to optimum ISS utilization in the post Core Complete time frame is the continued uncertainty associated with crew return capability. NASA is working with the International Partners to address this issue in the near term; however, the gap from 2006 until the Orbital Space Plane becomes available remains troubling. The Task Force also expressed some concern regarding the Orbital Space Plane development effort being outside Code M purview. Although still in the early stages, this development is critical and therefore warrants close scrutiny.

Summary

The IMCE Task Force is encouraged by the progress made across the board in the ISS program. If the proposed Budget Amendment is approved, a firm foundation will have been established for effective execution of the Core Complete program. We are confident that NASA will address the remaining open issues and the ISS program will be positioned to move forward to an end state configuration that realizes the full science potential of the International Space Station. Most IMCE Task Force members feel a follow-up review of the open/incomplete issues mentioned herein would be beneficial to NASA in approximately one year.